On behalf of ARRL, CNCS and UTC

Welcome to the

Communications Academy 2005

Emergency Communications Seminar

Shoreline, Washington

April 2-3, 2005

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Amateur Radio Emergency Communications From a National Perspective

Amateur Radio Emergency Services

[FCC definition]

- Licensed amateurs who have ***voluntarily registered*** their qualifications and equipment for ***communications duty in the public service when disaster strikes***.

Basis and Purpose of The Amateur Radio Service

[FCC Part 97]

- Recognition and enhancement of the value of the amateur service to the public as a voluntary noncommercial communications service, **particularly with respect to providing emergency communications** [97.1(a)]

Amateur Service

[FCC Definition]

- A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by ***amateurs***, that is, ***duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest*** [97.3(a)(4)]

ARES Pre 9/11

- ***UN-era***
  - **Unorganized**
  - **Unprepared**
  - **Unknown**

Ostrich Syndrome

"This won't happen to us!"

- Little effort made to update volunteer lists
- Many people listed as "Active":
  - Had Moved
  - Were Silent Keys
  - Were no longer participating in Amateur Radio activities

Federal Recognition

- Federal Homeland Security Grant

  from the Corporation for National and Community Service (CNCS)

  - EmComm online training for 5000 hams over 3 years

Corporate Grant

- May 2002, United Technologies Corporation (UTC) grant to train 250 CT residents in Level I before the end of the year.
- UTC follow-up 3-year grant in 2003 to extend training for US residents in Levels II and III.

Supply and Demand

- Ever-increasing numbers of hams needed
  - Public Service Agencies
  - American Red Cross
  - Salvation Army (SATERN)
  - Hospital Organizations
  - Federal Emergency Management Agencies
  - State Emergency Management Agencies
  - Others????

Cross Training Trend

- Public servants, i.e., police, fire, EMS, Red Cross workers, etc., are getting Amateur Radio licenses to enhance their communications capabilities.

AMATEUR RADIO EMERGENCY COMMUNICATIONS COURSE
ARECC
ARRL

ARECC Testimonials

- Current or graduate Level I students
- Level II and/or III students
- Mentor/Instructors

ARRL EmComm Program

Level I – Introduction to Amateur Radio Emergency Communications Course

Some Topics Covered:

1. Amateurs as Professionals – The Served Agency Relationship
2. Basic Communications Skills
3. Introduction to Emergency nets
4. Basic Message Handling

ARRL EmComm Program

Level II – Intermediate Amateur Radio Emergency Communications Course

Some topics covered:

1. Key ARES Management Positions
2. A Review of Basic Net Operations
3. NCS Operator Practices
4. Introduction to The National Traffic System (NTS)
5. Making Effective Use of Spontaneous Volunteers
6. Rapid Response Teams (RRTs)

ARRL EmComm Program

Level III – Advanced Amateur Radio Emergency Communications Course

Some Topics Covered:

1. ARES Management Positions
2. Building a Local ARES Group
3. National Voluntary Organizations Active in Disaster
4. Network Theory and the Design of Emergency Communications Systems
5. The Federal Response Plan

EmComm Course Graduates

(since Dec. 2000)

- Level I graduates: **6,500**
- Level II graduates: **2,200**
- Level III graduates: **1,500**
- **Approximately 90% of all students take this training on-line, interacting with Mentor/ Instructors and other students.**
- **New classes for each course open every month.**
- **Hundreds are still in on-going classes.**

ARECC Web Info

- Certification and Continuing Education (CCE) Home Page (http://www.arrl.org/cce)
- Course Listing and Descriptions
  - http://www.arrl.org/cce/courses.html
- Online Registration
  - https://www.arrl.org/forms/cce

ARECC Registration Info

- **3 Ways to Register**
  - Online with credit card during appropriate registration “window”
  - Check or Money Order in regular mail
  - Locally via a “hybrid” class coordinator.

ARECC Team Players

- Certification Mentor/Instructors (Audience Input)
  - Guide students through each course to successful completion of course requirements – reading all text, reviewing all quiz questions at the end of each lesson, complete all Student Activities, pass online exam with 80% or more
- Certification Examiners
  - Offer Certification Exam Sessions in the field for self-study students

Questions about the ARRL EmComm Grants or Courses?

-------- BREAK TIME -------

ARES Training Tools

- ARRL Emergency Communications Courses
- FEMA CERT Training
- FEMA online courses
- ICS/NEMA online courses
- SATERN training
- American Red Cross classes
- Public Service Events
- Others?

What do YOU use for communications?

- When was the last time you received a Telex or Telegram?
- When was the last time you received a Radiogram?
- When was the last time you received an email?

Winlink 2000

Digital Messaging for ARES

“Our primary mission is to provide Global digital communications for the benefit, safety and well-being of the user community, anywhere, anytime, anyplace.”

By
Steve Waterman, K4CJX
Winlink 2000 Network Administrator,
Winlink 2000 Development Team
(Member of ARESCOMM)

condensed by Dan Miller, K3UFG for EmComm Seminars

ARRL
The national association for
AMATEUR RADIO

Winlink

Why are we here?

July, 2004: In cooperation with its partnership with Homeland Security, the ARRL Board encouraged deployment of e-mail via Amateur Radio (as exemplified by Winlink 2000) as an additional capability provided to agencies served by ARES®

In harmony with the ARRL BOD resolution, the following recommendation has been made:

– A new network should:
  - provide ***rapid transfer*** of emergency traffic between Sections,
  - Provide ***flexible access between Sections***,
  - ***be automated*** as much as practical,
  - use available and future ***digital*** modes,
  - ***interface with commercial communications systems*** such as conventional telephone, cellular telephone, and the Internet, etc.,
  - have ***speed, performance*** and ***accuracy,***
  - deliver the emergency traffic ***end-to-end,***
  - provide ***immediate traffic delivery*** (crucial,)

TRADITIONAL ROLE OF HAM RADIO SUPPORT

Hand the microphone to the Served Agencies whose radio systems will not work.

Voice communications among served agencies (EOC, hospitals, shelters, and incident command.)

Report health and welfare of affected public.

Tactical support – Incident Command, search and rescue, damage and storm reporting (SKYWARN.)

This takes a lot of people!

WHAT TYPES OF INFORMATION ARE EXCHANGED?

"Where the #@! is the tank truck that was headed this way an hour ago?"

“What specific food is needed for people who are registered in the shelter?"

“Parents and 3 children safe, but children require special medical attention . Details to follow."

"St. Luke's hospital has taken in fourteen victims. Details to follow".

"Have you finished searching sector seven? What can I report?”

"This city block is about 20 percent damaged. Details to follow"

“Standby for detailed Medical procedure information.”

“Standby for detailed instructions for fixing the generator.”

TRADITIONAL MODES USED: CW & voice on HF. Voice, Packet BBS on VHF/UHF.

TRADITIONAL NETWORKS EMPLOYED: Local/’State/section/regional traffic nets over wide areas. Specialized networks such as SKYWARN.

Can Traditional methods do the Job?

A quote from the former FCC Director of Engineering and Technology

"In the past, hams have adopted more spectrally efficient technologies - for example, by migrating from double-sideband amplitude modulation to single-sideband modulation and, more recently, by shifting to more efficient modulation for digital modes. I would urge you to continue shifting towards more spectrally efficient communications techniques - especially digital techniques. Such a shift has a number of benefits:

- First of all, it demonstrates to policymakers and regulators that you are good stewards of the public's airwaves even without direct economic incentives.

- Second, by using what you have efficiently, it strengthens your case when you need to ask for additional spectrum.

- Third, by allowing more users to access the available allocations simultaneously, it improves the amateur experience and ultimately increases the attractiveness of the service to new and old users alike.

A quote from the former FCC Director of Engineering and Technology (continued:)

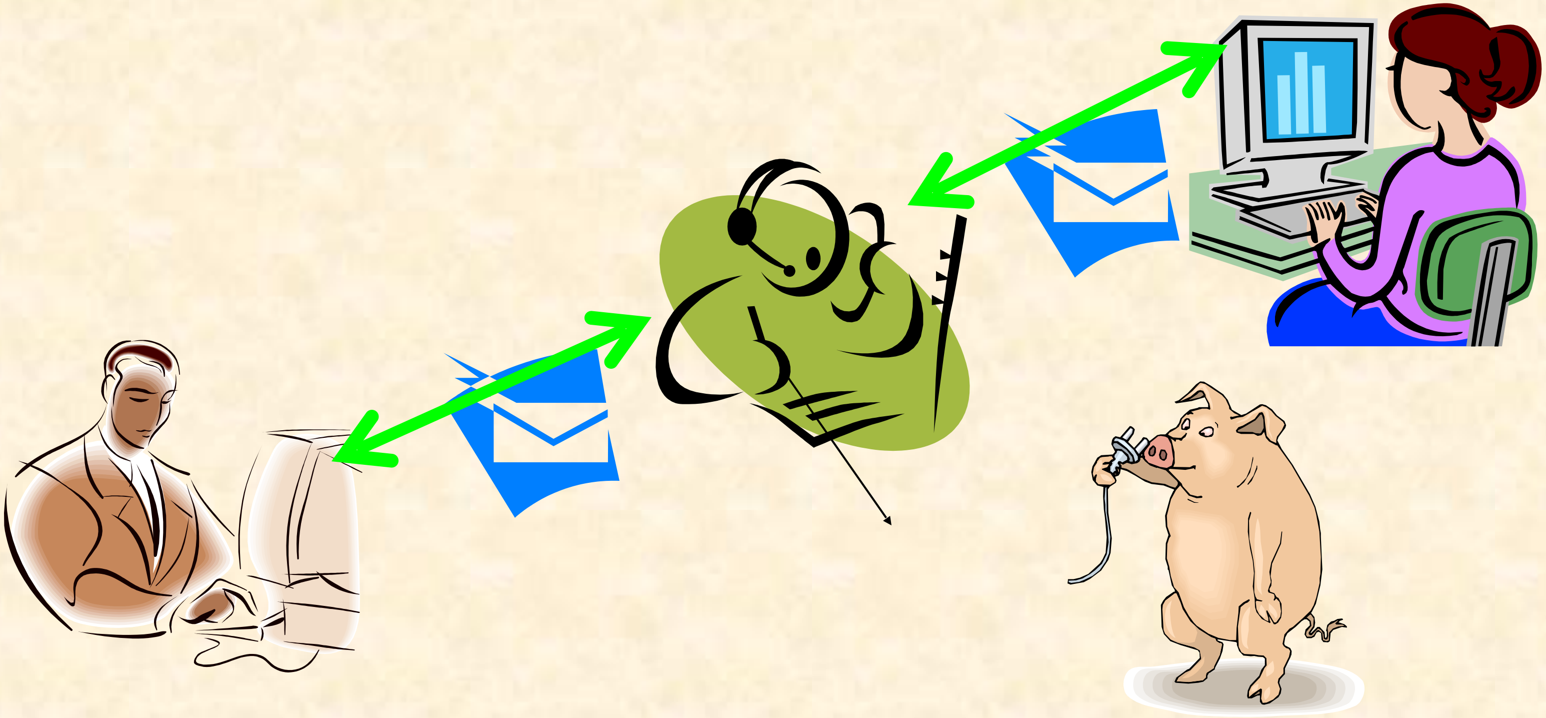
- Fourth, it provides the opportunity or "headroom" for increases in data rates to more closely match those available on wire line networks and, in the future, on commercial wireless networks as well.

- Fifth, as the rest of the telecommunications world makes the transition to digital techniques - and there are very few exceptions to that trend - the amateur service will look ***antiquated*** if it is not making progress in that direction as well.

So looking to the future of the amateur radio service in the new century, I would urge you to continue your traditional role in public service by being prepared for and providing communications in times of emergencies, conducting experiments, providing training in radio communications, and encouraging international comity. But I would also urge you to focus particular attention -- for the reasons I just mentioned -- on experimentation with digital techniques."

Served Agency Focus

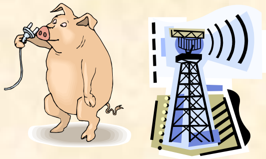
Amateur Radio *can* provide e-mail to any served agency without the internet within the “Last Mile,” across the Nation, or around the World.



HOW DO HAMS DO *THAT?*

Agency Focus on Emergency digital communications: **Requirements**

- It must “look like **e-mail.”**
- It must “use an e-mail editor like **MS Outlook Express** or Outlook, etc.”
- It must “have an **address book** like e-mail.”
- It must “include **multiple recipients (to:, Cc:)** like e-mail.”
- It must “send **multiple binary attachments** like e-mail.”
- It must “have a **spell-checker** like e-mail.”
- It must “work on ***multiple*** **computers** within an agency with *no* additional desktop software, and not invade the security of the system.”
- It must “provide **transparent, seamless, end-to-end email** when there is no normal Internet path.”
- It must be able to utilize **tactical email addresses**.
- It must “**NOT add to the stress** or learning curve of those who are already stressed in an emergency situation.”

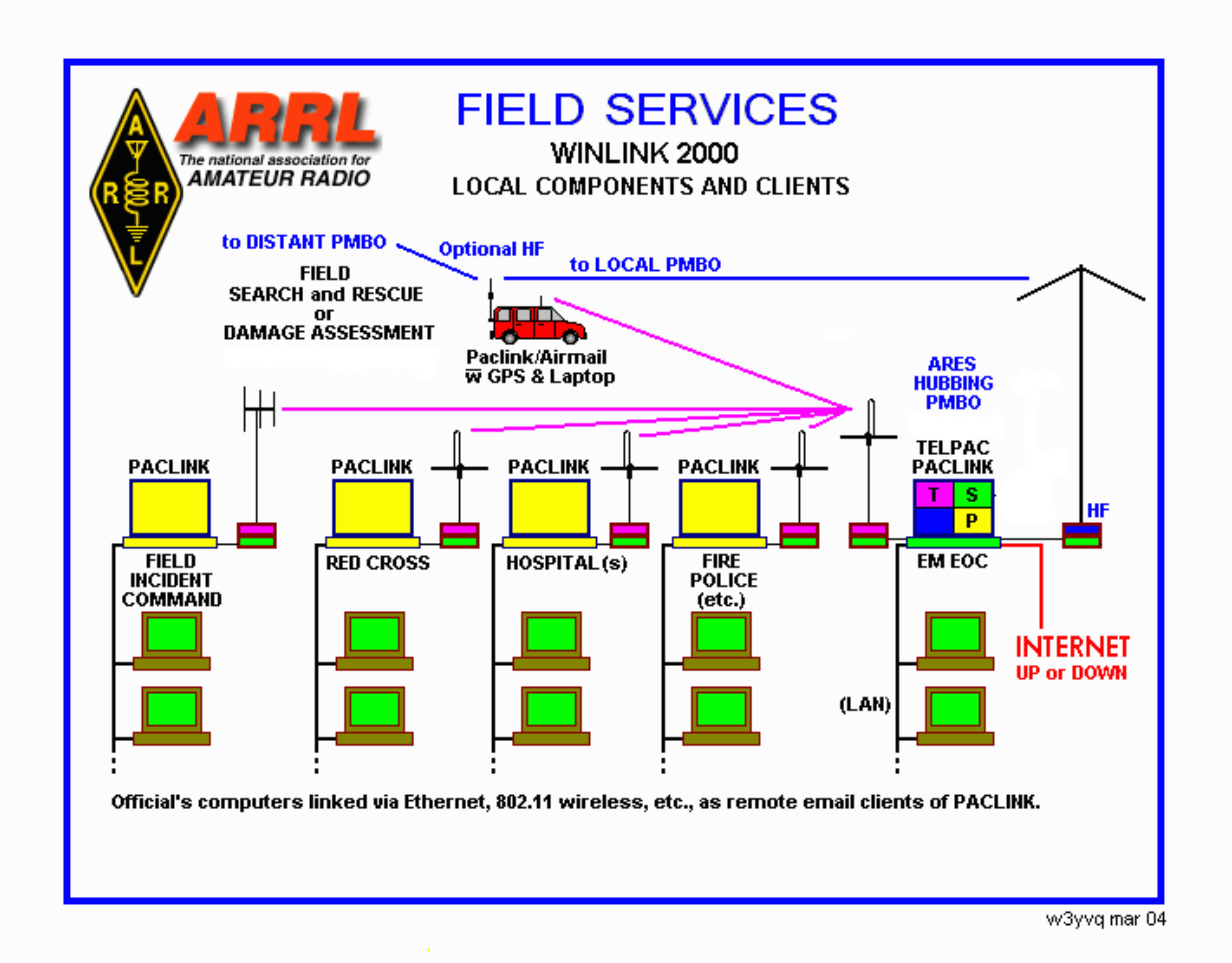


How do Hams do *that?*

Winlink 2000 in the USA and Part 97

- Winlink 2000 complies with §97.221 for an Automatically controlled digital station:
  - For Wider than 500 Hz: 97.221 (b) A station may be automatically controlled while transmitting a RTTY or data emission on the 6 m or shorter wavelength bands, and on the 28.120-28.189 MHz, 24.925-24.930 MHz, 21.090-21.100 MHz, 18.105-18.110 MHz, 14.0950-14.0995 MHz, 14.1005-14.112 MHz, 10.140-10.150 MHz, 7.100-7.105 MHz, or 3.620-3.635 MHz segments.
  - For 500 Hz: 97.221 (c) A station may be automatically controlled while transmitting a RTTY or data emission on any other frequency authorized for such emission types provided that: (1) The station is responding to interrogation by a station under local or remote control; and (2) No transmission from the automatically controlled station occupies a bandwidth of more than 500 Hz.
- Winlink 2000 complies with §97.109 Station control, for 3rd Party traffic rules:
  - (e) No station may be automatically controlled while transmitting third party communications, except a station transmitting a RTTY or data emission. All messages that are retransmitted must originate at a station that is being locally or remotely controlled.
- Winlink 2000 complies with §97.309 for data emission codes.
  - (4) An amateur station transmitting a RTTY or data emission using a digital code specified in this paragraph may use any technique whose technical characteristics have been documented publicly, such as CLOVER, G-TOR, or PacTOR, for the purpose of facilitating communications.
- Winlink 2000 complies with Sub-Part E when so designated (i.e.: §97.403 Safety of life and protection of property):
  - No provision of these rules prevents the use by an amateur station of any means of radio communication at its disposal to provide essential communication needs in connection with the immediate safety of human life and immediate protection of property when normal communication systems are not available.

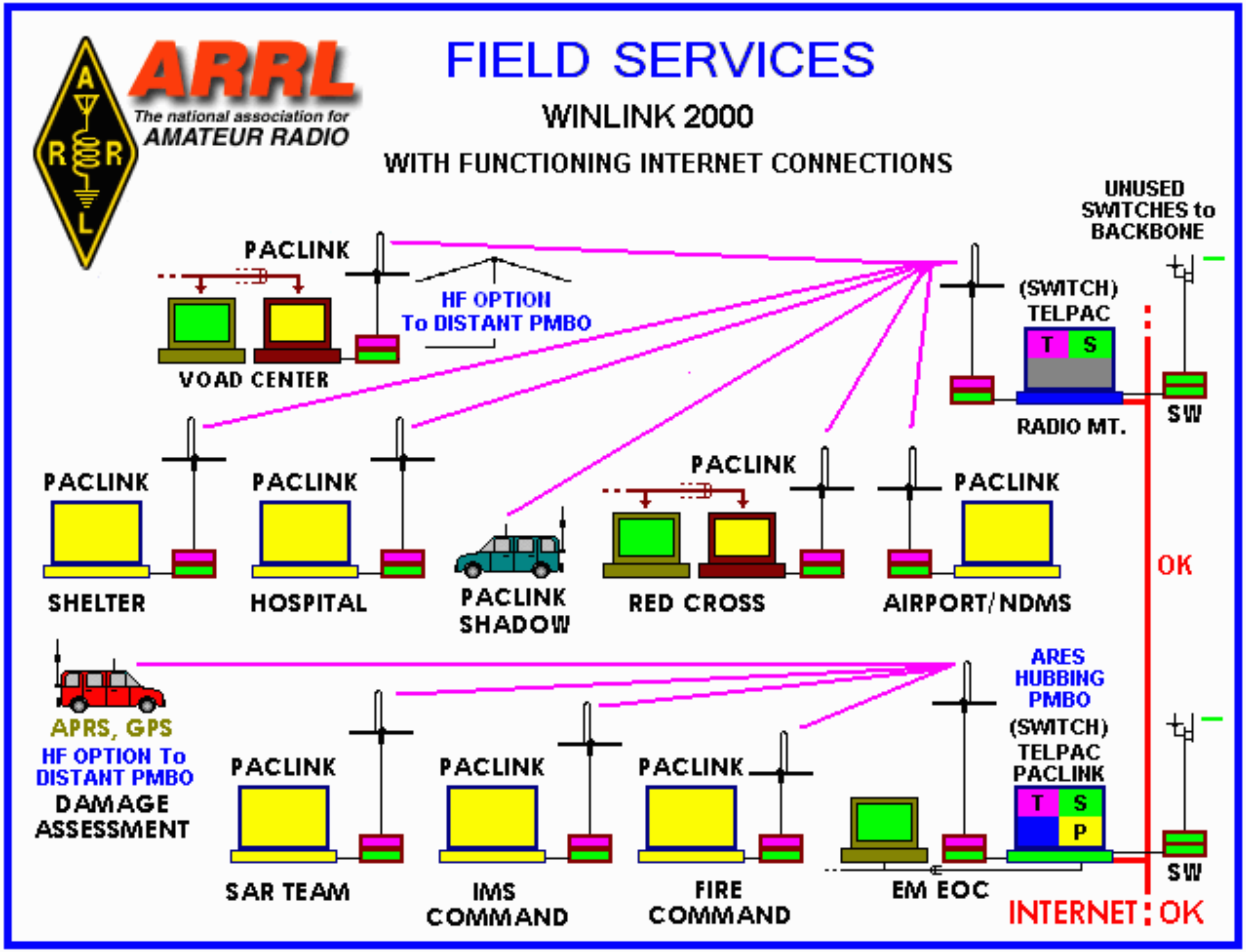
Complex View: LOCAL Hubbing PMBO with Co-Located Telpac node



Official's computers linked via Ethernet, 802.11 wireless, etc., as remote email clients of PACLINK.

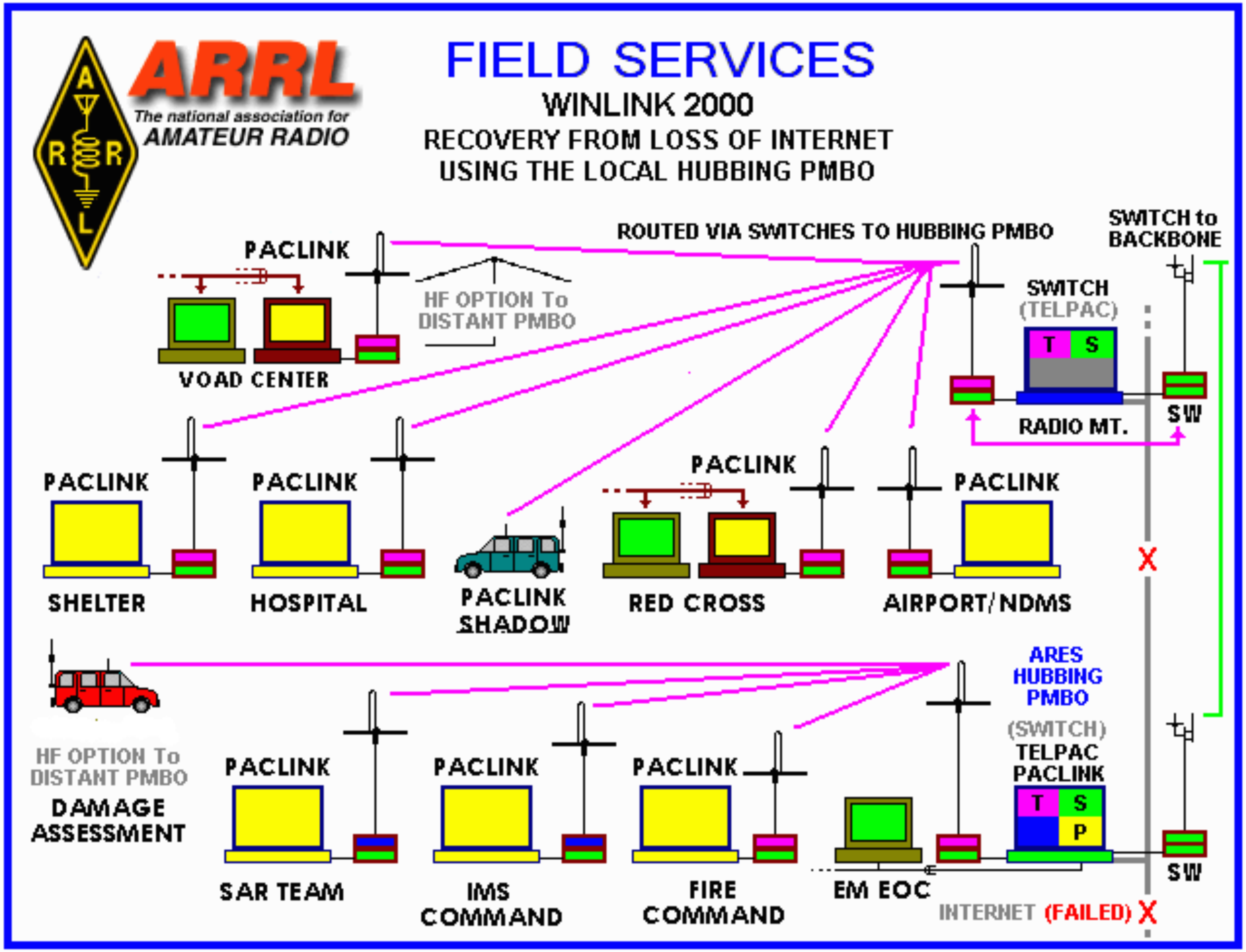
w3yvq mar 04

A complex view: Internet OK



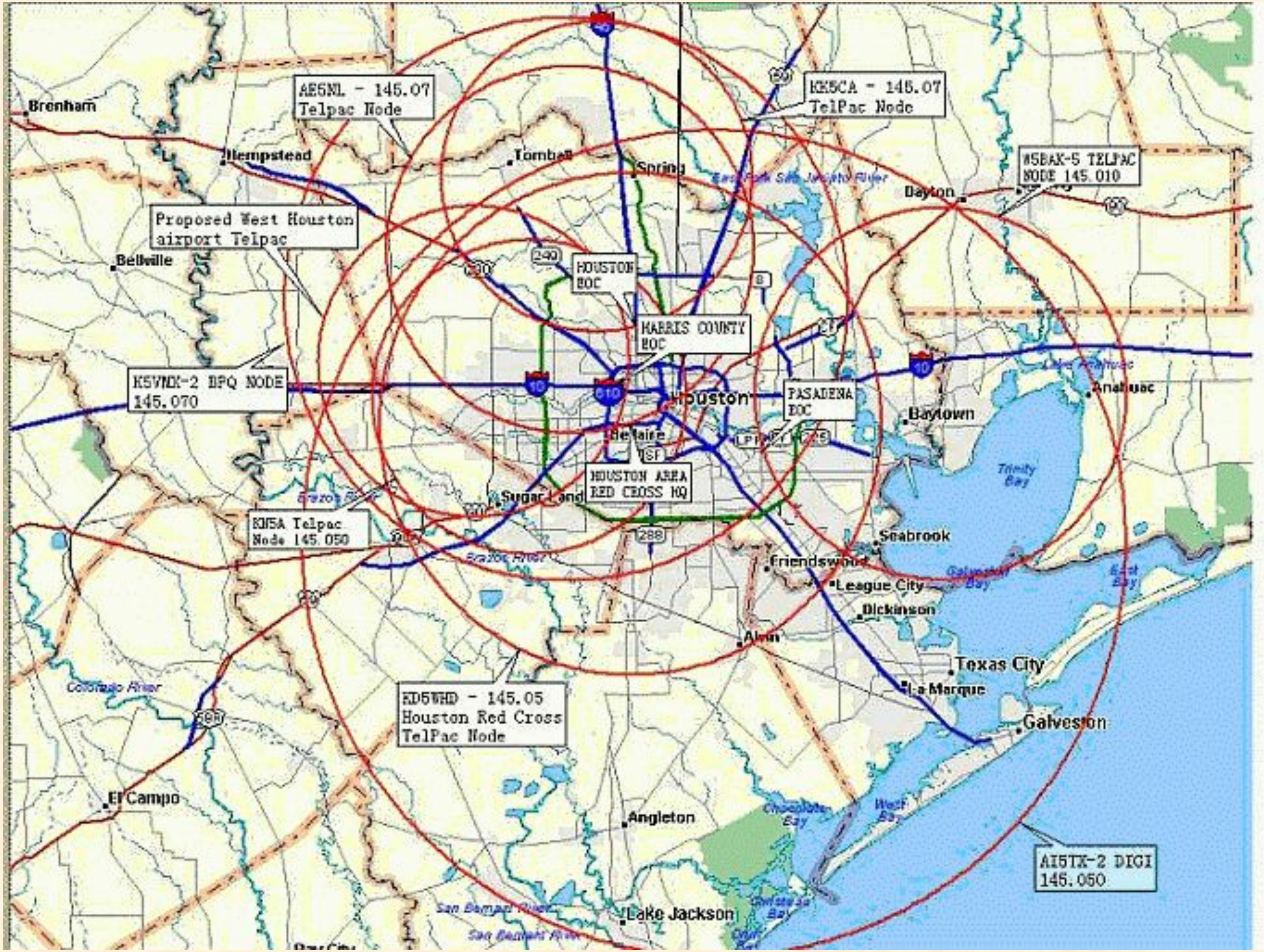
w3yvq mar 04

Complex view: Internet Failed!



w3yvq mar 04

Harris County (Houston,) Texas



Related Links & Additional Information

- Winlink.org
  - Winlink.org/status
  - Winlink.org.features.htm
  - Winlink.org.stations.htm
  - Winlink.org/news.htm
  - www.airmail2000.com
- winlink.org/Emergency.htm
  - http://www.arrlstx.org/digital/HCARESDignet.htm
    (Harris County Digital Plan)
  - http://www.fadca.org/ecomm/index.html
    (EmComm presentations by the Florida Amateur Digital Communication Association)
- Related Yahoo Groups:
  - http://groups.yahoo.com/group/telpac-paclink/
  - http://groups.yahoo.com/group/wl2kemcomm/
- **EchoLink Discussion Group, Wednesday, 00:00 UTC**
  Courtesy of the *W8FSM* conference Server.

Any Questions?

END PART 2

Other Volunteer Radio Services

- FRS
- GMRS
- MURS
- CB
- Others?

Have you done all you could to prepare for the next disaster?

Preparedness Quiz

Here are 12 questions to determine if you are fully prepared for the next event.

Score each question with 8 points for a “YES” answer and 0 points for a “NO” answer.

Best possible score is 96.

Let’s see how you do!

Preparedness Quiz

1

Do you know who your local emergency communications coordinator is?

Preparedness Quiz

2

In the past year, have you participated in any drills that included other radio services, such as CB, FRS, etc?

Preparedness Quiz

3

Do you know where to find potable water in your community if the normal water supply has been contaminated?

Preparedness Quiz

4

In the past 6 months, have you updated the perishable goods in your "jump kit" including meds?

Preparedness Quiz

5

Do you know whether your nearby shelter accepts animals?

Preparedness Quiz

6

When called to support your nearby town, do you have someone designated to take care of your family?

Preparedness Quiz

7

Does your primary vehicle always have at least half-a-tankful of fuel?

Preparedness Quiz

8

If it becomes necessary to suddenly leave your community, do you have at least 2 evacuation routes?

Preparedness Quiz

9

At this very moment, can you readily find a flashlight and a portable broadcast radio in your home?

Preparedness Quiz

10

Without power, gas stations cannot pump gas. Are you prepared for that eventuality?

Preparedness Quiz

11

In the past 12 months, have you participated in any additional ARRL, Red Cross, FEMA or SATERN training activities?

Preparedness Quiz

12

If approached by a reporter, can you answer questions you're authorized to answer without speaking GEEK?

How did you do?

96 Points = You’re ready!
80-88 = You’re almost ready.
Less than 80 = A little more work is needed.

Amateur Radio Today

- As of 3/6/05, there are 24,110 hams in WA, and approximately 4,808 (20%) of those are ARRL members.
- (March 2005) 665,022 FCC licensed hams,
  - N 28,889 (4.3%)
  - T 316,675 (48%)
  - G 136,712 (21%)
  - A 76,663 (12%)
  - E 106,083 (16%)

ARES Today

- Nationally, our country has probably never been better prepared than we are right now.
- However, from my vantage point at ARRL HQ, it appears that the number of unprepared communities is far greater than the number of those that ARE ready! We've barely scratched the surface.

CONCLUSION

ARES has come a very long way since 9/11. To keep the momentum going in our favor, it is crucial that we:

1. Overcome all problems encountered in the past, including **personality clashes**, **political differences**, **territorial disputes** and **inter-club strife**.

CONCLUSION

- **Work** and train together **with ALL radio services** involved in any capacity with emergency communications.
- Strive constantly for self-improvement
- Be ever-vigilant of our neighbors
- Treat everyone around us as we want to be treated!

ARES 2010

- With ongoing training and continued efforts to address and serve our local emergency communications organizations using all available tools, ***Amateur Radio in the year 2010 will be RECOGNIZED as the number one tool for communications regardless of the type of emergency or disaster***.

On behalf of the ARRL family, CNCS and UTC, thank you for your support and participation in ARES and RACES!